

Amendments to the Specification:

Please replace the second paragraph (starting on line 14) of page 22 and continuing to page 23 with the following:

Solvent intermixing between layers must be prevented in the context of the embodiments disclosed herein. With reference to Figure 1, the ~~The~~ resist of layer 10 has a weaker less polar solvent which is still sufficiently strong to dissolve the solids content of the resist. To fully prevent solvent intermixing, the hydrophilicity or polar nature of the surface layer 12 is then increased through treatment by an oxidizing agent 50 (e.g. ozone). Other agents thought to provide effective treatment include oxygen based plasmas and hydrogen peroxide. The surface energy of layer 10 is altered sufficiently such that the weakly polar solvent for subsequent photoresist layer 20 falls outside the solvent penetration limits of the treated surface 12. In this context, solvent penetration encompasses both solubility and swelling. These concepts are shown schematically in Figure 4 applying the formalisms of SPT theory. The solid line 400 represents the zone of solubility of the solids content of the photoresist. Solvents whose polar and dispersive solubility parameter fall within the region defined by the solid line 400 dissolve the solids content of the photoresist. The surface treatment creates a new zone of solvent penetration for the surface layer represented by the dashed line 410. In an embodiment, a solvent is chosen which falls within the solubility limits of the solid content of the resist 400, but outside the solvent penetration limits of the treated surface 410. Solvents, which fall within region 420, represented by the hatched pattern, dissolve the solids content of the resist enabling the polymer to be applied from solution. The solvent for layer 20 in this region, however, does not penetrate through a surface treated underlayer.

Please replace the first paragraph on page 28 (starting on line 2) with the following:

The results of the solubility mapping and additional test on patterned surfaces demonstrate with the appropriate combination of solvent system and surface treatment, the loss of resist thickness and feature definition can be prevented while still maintaining solubility of the solid contents of the photoresist. In practice several additional considerations related to sample preparation, coating uniformity, and adhesion between layers can be considered in optimizing the specific ratio of each constituent of the solvent and ozone treatment conditions. As solvent power is weakened, polymer-polymer interactions increase resulting in the coiling of polymer strands. Resist preparation may be both more difficult and time consuming and coating uniformity may suffer for a solvent system whose combined solubility parameter falls just at the perimeter of the solubility zone for the solid content of the resist. It can also be advantageous to limit the extent of the surface energy modification due to the ozone surface treatment. Poor coating uniformity and adhesion failure can occur when a large difference exists between the surface energy of the treated surface 12 and newly applied layer 20 (Figure1). Prolonged ozone exposure also increases the penetration depth of the surface treatment leading to more pronounced undercutting between layers.